AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

" *O Fortunatos nimium sua si bona norint*
" *Agricolas*". . . . . VIRG.

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AGRICULTURAL.

FROM THE ALBANY ARGUS.

Treatise on Agriculture.

SECTION IV—*Continued.*

Of the plants recommended for a course of crops (in the preceeding section) and their culture.

IV. *Of Barley.*

It is probable that bread was first made from this grain. The Jewish scripture speaks only of the *barley loaves*; the gladiators among the Greeks were called *barley eaters;* and Columella says, that (like our Indian corn and beans in the southern states) barley was the food of the *slaves*. Among the Romans, it was first employed as a food for man, and afterwards for cattle. (14) The same qualities which recommended it then, have since diffused it more generally than any other grain; it is found to be better adapted to different soils and climates; less subject to the attacks of insects, and more easily preserved. In times of scarcity, it is a good substitute for wheat, and at all times yields a beverage, under the names of beer, ale or porter, equally wholesome and invigorating. It is besides, a food, on which cattle do well, and horses arrive at their greatest possible perfection. (15)

The *species* of this grain most in request, are two—Hordeum Distichum (two row barley) and Hordeum Celestæ (naked barley.) The former is preferred in England, and as we suppose in France, as M. Parmentier ascribes to it all the good qualities of the other species, and much more productiveness. (16)

Of the latter species, the nations of the north, who are most in the habit of using barley as the basis of both food and drink, speak highly. (77) But among us, who cultivate it only for the last purpose, this species has less credit, and is even considered the worst, from a belief, that after being dried, it malts imperfectly or with difficulty.

Though not so nice in relation to soil as either wheat or rye still barley prefers a loose, warm and moist (not wet) soil, and even grows remarkably well in sand, (where we have placed it) in succession to turnips, either ploughed in the ground or consumed on the field.

Other things being equal, the spring crops which are first sowed, give the best and largest products. The moment, therefore, that your soil is sufficiently dry, begin ploughing and at a depth not less than six inches; because the roots of barley enter the earth more deeply than those of any of the other cereal graminæ. If the soil be well pulverised (as it ought to be after turnips) a second ploughing would but be a waste of time and money: (18) proceed therefore, to sow your barley broad cast, (19) and cover it with a short toothed harrow. The last operation will be to sow and roll in your clover seed, destined to become the next crop in succession.

V. *Of Clover.*

The Trifolium Agrarium of Linneus, is found growing spontaneously in many places, as is sufficiently indicated by the names given to it—of Dutch clover, Spanish clover, clover of Piedmont, clover of Normandy, &c. &c. (20) It is about two centuries since it first became an object of agricultural attention as *forage*, while its *ameliorating effects on the soil* (produced by its peculiar system of roots and leaves) was a discovery of modern date. It is now generally sown with barley, or other spring grain of the culmifenous kind, and rarely by itself. The advantages proposed by this practice, are three: 1st, the preparation given to the soil for the grain crop, which is exactly that best fitted for the clover; 2d, the protection given by the barley to the young clover, against the combined effects of heat and dryness; and 3d, the improved condition in which it leaves the soil for subsequent culture. In this practice, however, a less quantity of barley must be sown than usual, because without ventilation, the clover plants will perish. To this condition two others must be added, because indispensable to a good crop; 1st, that your seed be good; and 2d that it be regularly and equally sown. The tests of good seed are, its comparative size and weight, (the largest and heaviest being always the best) its plumpness, its yellow or purple colour, its glossy skin, and lastly its cleanness, or separation from other seeds and from dirt.

The human hand was do doubt, the first machine employed for sowing seeds. The difficulty, however, of scattering them equally over every part of the field, soon attracted notice and engaged mechanics in devising something which should better answer that purpose. China was the first to produce any thing at all commensurate with this object; and it was not till the seventeenth century that this, or some similar invention, was introduced into Europe by Lucatteo, a Spaniard, who, meeting no encouragement at home, transmitted his real or pretended discovery to London. Here, as has been conjectured, it served as a model for the sowing machines of M. Tull, and from 1750 to 1770, the mania on this subject was at its height; but from that period to the present, it has been gradually subsiding, and the hand is now completely and generally restored to its original functions.

The quantity of seed to be given to the acre should, in a great degree, depend on the soil; if this be rich, ten or twelve pounds are sufficient; and if poor, double that quantity will not be too much. The practice of mixing the seeds of timothy and rye grass, &c, with that of clover, is a bad one; because these grasses neither rise or ripen at the same time. Another practice, equally bad, is that of sowing clover seed on winter grain, before the earth has acquired a temperature favorable to vegetation, and when there cannot be a doubt but that two thirds of the seed will perish.

By the time your barley, or other covering crop, is harvested, your clover will be sufficiently established to live alone; and, *if not pastured*, (21) to brace the ensuing winter, and during the next summer to repay your labor by two abundant crops of hay or grass.

The period in the growth of clover, at which it is most profitably cut and used, presents a question much discussed and variously answered; because depending on extraneous and local circumstances; (such as the state and proximity of markets, &c.) which cannot fail to vary the results, in the hands of different persons, and even of the same person, at different times and at different places. There are, however, some general remarks which belong to the case, and which ought not to be omitted in even this brief view of the subject:

1st. Clover cut *before* it flowers, abounds in water—has in it but little nutritive matter, and is even apt to produce indigestions in the cattle fed upon it. (22)

2d The stems of clover, cut *after* seeding, are hard and woody, and no longer hold the leaf; and,

3d. All plants when permitted to seed, exhaust the soil; and to this rule clover is not an exception.

From premises furnished by these facts, we would conclude, that the short period between the flowering and seeding of clover, is that in which its use would be most advantageous, whether regarded as a *forage* or as an *ameliorating* crop.

When *seed* is the principal object of culture, we cannot do better than to adopt the practice in Holland—where the first crop is cut *before* it flowers, and the second is reserved for seed.

The largeness of the stems, the number of the leaves, and the aqueous quality of both, render it a difficult business to make clover grass into hay; and the difficulty is not a little increased, by the brittleness or disposition of the drying grass to fall into pieces during the process of handling. To meet this case, two supplementary means have been employed; which enable you to house or stack clover in a much greener, or less dry state, than would otherwise be safe. The one is, to scatter over each cart load, while stowing away for keepings two or three quarts of sea salt: the other, to interpose between two layers of clover, one of clean straw. By the first method, the whole mass is made acceptable to cattle; by the second, the quantum of neutritive forage is increased—and by both methods the clover is effectually prevented from *heating*.

The next step, in our system, is to plough in the clover stubble, as a preparation for the succeeding crop.

VI. *Of Wheat.*

This grain, so useful to man, (because forming so large a portion of his subsistence) is happily found to adapt itself to a great variety of soils and climates. It grows vigorously in clay, in loam, in calcarious earth and even sand, when aided by manure, or in succession to peas, vetches, clover, &c. To the north it is found in the frozen regions of Siberia; and to the south, under the burning sun of Africa it yields, according to the declaration of Pliny, more than one

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(14) This use grows out of the belief of its nutritive and invigorating qualities.

(15) See Buffon on the horse of Arabia. Vol. xxii. p 195.

(16) He states it to be *double as much.*

(17) "Hordeum celeste Norvegis gratissimum quoniam cerevisiam generosam præbet." Mitterpacher. Elem. rei, rust. page 312.

(18) The Romans had two maxims on the subject of expense, which it would be wise in us to adopt: "those profits are to be preferred, which cost the least;" and again, "nothing is less profitable, than very high cultivation." "Nihil minus expedire, quam agrum optime colere."

(19) Mr. Young's experiments show, that there is something in the constitution, or habits of this grain to which the drill, or row husbandry, is not accommodated. Even isolated grains, wed and worelled, did not do better than the same number in broad cast.

(20) A seed of Holland clover, of the same volume with one of Normandy clover, weighs one seventh more. See Gilbert on Artificial Meadows.

(21) If the *crowns* of young clover roots, be nibbled or otherwise wounded the roots die. Sheep and horses, (both of which bite closely) should therefore be particulaaly excluded from clover, unless intended for pasturage only.

(22) This effect of clover, which we call *huving*, is prevented in Alsace, by watering the cattle before giving them clover, because a certain quantity of water prevents *fermentation.*

hundred fold. (23) In ancient Rome, its use, as a food for man, soon superseded that of barley and rye; and in modern Europe, it is even denominated *corn* par excellence.

Of this invaluable grain, there are four species, distinctly marked and generally acknowledged, viz. Many headed wheat, (24) Polish wheat, spelts and common wheat. We shall speak only of the third and fourth species, because with the others, we have little practical acquaintance: and,

1t. of *Spelts.* This species and its principal variety [Triticum Monicocum] is much cultivated in Germany and Switzerland. Deprived of its husk, the grain is smaller than that of common wheat, but yields a flour of finer quality and better fitted for the purposes of pastry. (25) Two other circumstances recommend it; it withstands the attack of insects, and will grow in poorer soil with less preparatory labor, than the fourth species.

2d. *Common wheat* has many varieties; some of which are bearded, and others bald; some oval and others round or square; some yellow or red, and others white; some soft and others flinty; accidents arising from culture and climate, and not, as we believe, the result of an organization uniformly and essentially different.

With regard to the culture of this plant, we shall confine ourselves, to the following points; the preparation of the soil, the choice and preparation of the seed and the time and different modes of sowing or planting it.

1st. Of the preparation of the soil.

Products of much value to man, can only be obtained by corresponding degrees of labor. The sugar cane, rice and wheat, are more valuable than oats, buckwheat or turnips, and require more labor and expense in their cultivation. Indeed, under the old system of fallows the degree of both, bestowed upon a wheat crop, was enormous. Two years and five or six ploughings, were sometimes given to this preparatory culture; but on the new plan of a rotation of crops, the necessity for this, is in a great degree obviated, and two ploughings of a clover lay are in general amply sufficient. Still, this takes for granted, that these ploughings are well performed; that no clods are to be seen and the field presents an unbroken surface of mellow and finely pulverized earth.

2d. Of the choice and preparation of seed.

Seed should be taken from some fine crop of the *preceeding year*, (26) which shall have ripened thoroughly and been well preserved. This, after passing two or three times thro' the fanning mill, should be carefully washed in clean water, and again in water in which a quantity of fresh lime has been slacked; or, (if lime cannot be had) in which clean and recent wood ashes have been leached. This washing, as we have already suggested, should never be omitted; because, besides detecting the shrunk or shrivelled grains, and many seeds of other plants (which will float on the surface of the water) it entirely removes the *dust* of *smut* and *rust*, &c. and thus prevents their propagation. (27) our next step in this process is to roll the seed in pulverized gypsum.

3d. Of the time of sowing wheat.

On this head there is a diversity both in practice and opinion. Some prefer early, others late sowing; some sow in the full, others in the wane of the moon, &c.

Theory is certainly on the side of early sowing—because it gives time for the roots of the grain to establish themselves before winter, and experience proves, that grain early sown, throws up more lateral stems, than that which is sown late.

Of lunar influences, we know very little, excepting, that they extend to the waves of the ocean; which has probably first begotten the opinion (held by M. Toaldo and other scavens) that the atmosphere [which is only another and more fluid ocean, and which has much to do with the health and diseases of animals and vegetables] is also subject to these influences. But the calculations of M. de Place prove, that the effect of these on the atmosphere, will not make a difference of one line and a half on the barometer, and are wholly insufficient, to account for those great agitations of the atmosphere, which have been supposed most to affect vegetation.

4th Of the different modes of sowing wheat.

These are two, the one, executed with the hand; the other, with a sowing machine of which we have already spoken, The latter has been advocated on the ground of economy, employing less seed and distributing what it does employ more equally. Nor will it be denied, that when wheat is very high and labor very cheap, there may be a saving in the use of this machine; but in all other circumstances, the comparison is in favor of the other method, as it requires less time and fewer laborers, and as the waste and irregularity imputed to it, are, in hands practised and steady, reduced to a little or nothing.

A third method of propagating wheat, viz. by transplanting the suckers at regular distances from the seed bed, into another prepared to receive them, has been practised on a small scale and is found to yield abundantly; but it is so embarrassed with expense as to render it entirely unfit for general use.

Of the produce of wheat, very different accounts have been given. To the extraordinary fertility of Byzatium, already mentioned, Pliny adds, that in Leontium, in Sicily, its produce was one hundred for one; yet Cicero, who had been quætor of that island, asserts, that the produce of Sicily, was but ten or twelve for one. [28] To conciliate these high and opposite authorities, M. Yvart has supposed, that the product mentioned by Cicero, was an average one of the whole island; and that reported by Pliny, was the result of one or more *transplanting experiments;* an opinion rendered probable from the fact, that the parent stems and their offspring, had been sent to Rome by the procurator of Augustus. (29)

Some calculators have supposed, and on data not easily refuted, that the maximum produce of this, grain over the whole face of the globe, and in a series of any ten given years, will not exceed six bushels reaped for one bushel sown. (30)

VII. *Of Peas.*

The pea is a native of the southern part of Europe, and is found growing spontaneously in the western parts of our own continent. The family is a large one, containing several species; but of these, the *field pea* alone comes within the scope of our present purpose. Of this, there are two varieties, denominated, from their color; the gray and the green; both productive; and (when separated from the skin that surrounds them) a food of excellent quality for man; wholesome nutritive and pleasant; and for cattle, whether in a dry or green state; much to be recommended. Sheep, cows and horses are particularly fond of them; and hogs are more promptly and economically fattened on a mixture of pea and barley meal, in a state of acetus fermentation, than by any other food.

The structure of the roots would indicate, that peas are an exhausting crop; and it is on this evidence, that in Europe they are admitted only in long or six years rotations but if we examine the leaves, in regard to both number and form, we will probably find reason to modify this opinion and allow, that by stifling weeds, by checking evaporation, and eventually, by their own fall, they emeliorate the soil and render it more favorable to subsequent crops.

Following turnips, [as in the rotation we are now discussing] the preparatory labor for a pea crop, is not great. One, or at most two ploughings, will be sufficient. Sowing, as a general rule, ought to follow plouging, without loss of time; and care should be taken that the seed be not laid too deeply. The two methods, row and broad cast sowing, may be indifferently pursued. By the former, the seed is economised, the product increased, and the soil better tilled; but not, as some have supposed, with such decided advantage as to outweigh the saving, in time and labor, of the latter.

The length and feebleness of the stems of peas, and the little tendrils they throw out for support, indicate the advantage of mixing with them other plants of more erects growth, which may prevent the peas from falling and lodging. For this purpose, rye, oats and beans have been selected, and with great advantage.

This crop is employed either in a dry or in a green state; between which every farmer will select, according to circumstances. If the market for peas be brisk and high, he will harvest, thresh and sell the grain; if, on the other hand, peas are low and pork high, the moment the pods fill, he will turn in his hogs upon them, and with the following advantages: 1st, the hogs feed and fatten themselves, without any additional interposition of his labor; 2d, no particle of their manure is lost; 3d, the *debris* of the crop, refused by the hogs, is given back to the soil; and 4th, the rooting of these animals, which in other cases is an injury, is in this a benefit.

(30) The reader will remember, that on our plan, turnips follow wheat, as they do rye, and without any difference in cultivation. See article 3d of this section. To repeat here what we have said there, would be useless.

(To be continued.)

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(23) "Tritico nihil est fertilius: utpote cum e modio, si sit aptum solum, quale in Byzacio Africæ campo centuri quinquageni modii reddendur." XVIII L Nat. His. Pliny.

(24) This is the *Triticum Compositum* of botanists, called wheat of plenty, miraculous wheat, &c. yielding largely, but, on manufacture, giving much bran and bad flour.

(25) The bread of Franckfort, Nuremberg, &c. so much boasted in Germany, is made from spelts.

(26) A great variety of experiments show, that wheat preserves its germinating faculties, under circumstances apparently very unfavorable, and that it may even be sown to advantage, after several years keeping; after a slight degree of malting in the sheaf or the stack, and after having been subjected to a high degree of artificial heat. We mention this fact, however, not to invite to a selection of seed grains, of either of these descriptions, but to assure the farmer, that where better cannot be had, he may employ such, for that purpose, without apprehending a total loss of his time and labor.

(27) *Smut, charbon,* and *rust* in grain, were (according to the old philosophy] attributed to storms, or other particular state of the atmospher; but Mess. Tillet, Tessier, B. Prevot and Decandolle have shown, that the two former of these diseases are produced by an intestinal parasite, of the uredo or mushroom family, the progress of which is much promoted by humidity and shade. Analogy favors the opinion, that *rust* owes its origin to the same cause. The remedy for all is the same; wash your seed grain thoroughly in lime water, roll it in plaster of paris and sow it in the fall, before the cold and wet weather begins, or in the spring, after it has ended.

(28) Orat. contra Verrem.

(29) Misit ex eo loco, divo Augusto procurator ejus, ex uno grano [vix credibile dictu] cccc. paucis minus germina, Pliny.

FOR THE AMERICAN FARMER.

PROCEEDINGS OF THE AGRICULTURAL SOCIETY

OF ALBEMARLE.

Papers communicated for publication by the Corresponding Committee.

No. 3.—On Draining.

[READ, OCT. 12, 1818.]

Ridgeway, Sept. 26, 1818.

DEAR SIR—Four years ago I made a small essay in draining after a manner different from any I had ever heard of, or seen practised; the efficacy of which determined me to

repeat the experiment this spring upon a larger scale. I am so entirely satisfied with the success in both cases, that I am induced to communicate the mode to you for the information of our society.

It may be remarked, that lands which require to be drained, are always rich, and when thoroughly reclaimed by this process, are the most productive of any we have. The operation is one too of considerable labour and expense; and where open ditches are relied on, this labour and expense becomes in a measure annual, from the necessity of cleaning out with the spade and trimming the banks of weeds, bushes, briars, &c.; hence the superior advantages of secret or covered ditches; will be at once perceived, by which not only all this annual labour, but a considerable portion of the best land, occupied by the ditch, the bank, and the turning lands, are saved. The land lost to cultivation by an open ditch, with its banks, and the necessary width for turning a plough on each side of it, is not less than 15 or 20 feet, which in many cases is the extent of surface to be reclaimed; to say nothing of the loss of time incurred by frequent and short turnings of the plough.

These considerations governed me in the first experiment I made, the subject of which had been on open ditch, for many years running through a piece of flat land, the distance of 300 yards, and conveying the water of a bold and constant spring from a foot of a hill to a river. The expense of cleaning out with spade, and trimming the banks, of briars, &c. (which before this formed a considerable item in the account of disagreeable and unhealthy labour) had been incurred for several years, besides the loss of nearly half an acre of the best land.

I determined to save this expense, and regain the land to cultivation by conveying the water subterraneously. For this purpose I opened a new ditch from the river to the head spring, two feet wide and two feet deep, the sides of which are cut down perpendicularly, instead of giving them the usual slope. At the bottom of this ditch, and exactly in the middle of it, I cut a channel 6 inches wide and 6 inches deep, into which all the water immediately collected. A common grubbing hoe was the instrument used in doing this; but I think a more convenient tool, something like a spade of proper width, could be made in any blacksmith's shop. This channel should be made, however, larger or smaller according to the size of the stream to be conducted, allowing for the increase of water in wet seasons, with a gradual and regular fall. Stones which were near at hand were then obtained, with at least one flat surface, and laid side by side across this channel, resting upon its two banks at the bottom of the ditch. The stones for the first course should be so long as to bear at least 4 inches on each bank. If they are rough and do not come well together, other stones may be care fully laid on the top so as to cover the openings, and if convenient, it will be advantageous to fill the whole ditch with stone to a point somewhat below the depth of any ploughing that may be contemplated. The work was begun at the upper end and proceeded downwards, that the cannel might be cleared of any obstruction that might fall into it. The whole was then covered thickly with straw and the earth returned. Ramming is unnecessary, as the earth will quickly settle to a proper firmness.

Ploughing and other operations of husbandry have since been carried on over this ditch as if none existed, and the purpose of draining the land has been completely answered. A much frequented road passes over one part of it. It has now stood the test of four years under an annual crop, in which time the whole has been twice overflowed by the water from the river, for 24 hours at a time, and no part of the vent at all injured or obstructed. I consider the work therefore, as done for ever, and the expense I conceive to be greatly less than any other mode of secret draining. I found that the same hands could place the stone and return the earth in less than half the time they spent in cutting the ditch.

In the northern states where the practice of draining with stone is common, the method is, to set up one course of stone perpendicularly against one side of the ditch, and another course leaning against it, forming an angle of about 45 degrees. But this is certainly, not only more tedious, but requires a double portion of stone, and that too of a particular size and shape to make the channel uniform and sufficient. Arator, a distinguished writer on agriculture, and one of the first practical farmers of our state, recommends a deep and wide ditch to be filled with brush covered with straw or leaves, and the earth to be returned and rammed. But not to mention the great labour and expense of this process, it is certain that this work must in time decay; and the mode should only be resorted to where stone can not be procured. In our hilly country stone is generally abundant; in many places so much so, as greatly to impede the operations of the farmer. By converting it to the use I have mentioned, he would find his hills freed from a great nuisance, and his wet lands reclaimed to cultivation by the same operation.

With great respect, yours,
P. MINOR.

Mr. Madison, President of the Agricultural Society, Albemarle.

ON THE COMPARATIVE UTILITY OF

OXEN AND HORSES,

IN HUSBANDRY.

FROM BATH SOCIETY PAPERS.

No. II.

Bougham, near Bury, Suffolk, Dec. 17, 1781.

Gentlemen,

As one of your queries to the High-Sheriffs respected the comparative utility of horses and oxen in husbandry, I wish to submit the following facts to your consideration:—

About five years ago, I took some land into my occupation, and having found the expense of horses very great, I determined, somewhat more than two years ago, to make trial of oxen, and bought one pair. At that time, I am almost certain there was not an ox worked in this country; on which account my workmen added much to the trouble of breaking them, by their obstinate prejudices against the use of them.

At last I was fortunate enough to select a labourer, who though totally unused to them was willing to take proper pains to break them. By his good treatment and temper they soon became tractable, and as handy both at ploughing and carting as any horses.

Being well satisfied with their performance, I resolved to dispose of my draft horses, and substitute oxen in their stead. I have now completed my plan, and have not a single cart-horse; but the work of my farm, which consists of upwards of one hundred acres of arable land, and sixty of pasture and wood, is performed with ease by six oxen; together with my statute-duty on the highways, timber and corn, carting, harrowing, rolling, and every part of rural business. They are shoed constantly: their harness is exactly the same as that of horses, (excepting the necessary alterations for difference of size and shape) they are drove with bridles, and bits in their mouths, and answer to the same words of the ploughman or carter as horses, and readily. A single man holds the plough, and drives a pair of oxen with reins; they will regularly plough an acre of land, every day, and in less than eight hours time: I believe they will do it in seven, but I would not assert more than I know they perform.

I have a small plantation, in which the trees are planted in rows ten feet asunder; the intervals are ploughed by a single ox with a light plough: and he is driven by the man who holds it I mention this as an instance of their docility.

My oxen go in a cart single, or one, two, or three, or more in proportion to the load. Four oxen will draw eighty bushels of barley, or oats, in a wagon, with ease; and if they are good in kind, will travel as fast as the horses with the same load.

I frequently send out eighty bushels of oats with only three oxen; and forty bushels with one ox, in a light cart, which I think of all others the best method of carriage. My workmen are now perfectly reconciled to the use of oxen, and the following reasons determine me to prefer them greatly to horses:

1st. They are kept at much less expense. Mine never eat corn nor meal of any sort. During the winter, they are kept in good order for work upon straw, with turnips, carrots or cabbages; for want of either of the three latter, I allowed one peck of bran a day to each ox whilst in constant work. When my straw is finished, and the spring advan-

ces, they eat hay; and if they work harder than common in seed time, they have bran beside. When the vetches are fit to mow, I give them in the stable, they have nothing else. After the day's work in the summer, they have a small bundle of hay to eat, and stand in the stable till they are cool, and are then turned into the pasture.

I am of opinion, that the annual difference of expense in keeping a horse and ox, each in condition for the same constant work, is at least four pounds.

2. The value of a horse declines every year after he is seven years old; and is scarcely any thing if he is blind, incurably lame, or very old. But if an ox is in any of those situations, he may be fatted, and sold for much more than the first purchase; and will always fat sooner after work than before.

3. They are not so liable to illness as horses. I have never had one indisposed.

4. Horses (especially those belonging to gentlemen) are frequently rode by servants without their master's knowledge, and often injured by it. Oxen are in no danger of this kind.

5. A general use of oxen would make beef, and consequently all other meat, more plentiful; which I think would be a national benefit.

As it may be thought, that a pair of oxen will plough an acre of land in a day only upon a very light soil; I must add, that the greater part of my arable land is too heavy to grow turnips to advantage. When my lighter lands are in full tilth, I make use of a double plough; a single man holds it, and drives one pair of oxen, and will plough two acres a day.

I am well aware that the method of working oxen with a yoke spares a considerable expense in the article of harness; but they move so much more freely with collars, and can be used with so much more advantage singly by the latter method, that I think it far preferable.

After experience has inclined me to give the preference to oxen, I will not omit in my account the only material inconvenience I have found in working them; which is, they are troublesome in shoeing, at least I have found them so in this country: and, I believe, chiefly because my smith never shoed any before. I have them confined in a pound whilst they are shoed, and a man attends the smith. However, I think this disadvantage amply recompensed by more material advantages; and can with great truth affirm, that the longer I have worked oxen, the better I have been satisfied with them.

With great respect, I am, Gentlemen,
Your most obedient servant,
R. KEDINGTON.

London, Dec. 8th, 1804.

SIR,—You will have the goodness to express to the Bath Society my regret that I cannot attend its anniversary meeting, as was my intention.

On the subject of my claim to the premium for a change of sheep stock, &c. I have only to observe, that it was made at a period the most unfavourable to the stock, when distress for keep of all sorts was greater than I have ever known; and that whether the premium be adjudged or not to me, I shall ever consider the favourable reception it met from the Committee to which it was referred, the able essays which it produced, and the recommendation which this committee, numerously attended, has unanimously given to this general meeting that it should be awarded, together with the proofs since produced, as decisive on this most important question.

The return of my year's labour with oxen was made out for the year 1803, because the year 1804 not being expired, to have made it without the amendment, since resolved on, would have been a palpable error. I now comply with the repeated and earnest wishes of the Society, in presenting this statement for its inspection.

Unprepared as I was, it would have been impossible to have done it with that degree of accuracy which I shall adhere to in any statement of serious import to the public; but the rules which govern the proceedings of the Bath Society allowing me time to examine my own books, and to obtain replies to certain needful questions, I have great pleasure in stating that the following report, now presented to the Society, is in substance, I trust, correct. In that part of the statement which reduces the hauling and carting of manure to be equal to a given number of acres ploughed, I have profited by the kind assistance of Mr. Paul, and Mr. Gordon Grey.

No land ploughed with horses, save part of one acre, as a trial.

	No. of acres.
Forty-four acres of ley ground broke up	44
Fifty ditto of spring corn, two earths, scarified and dragged, equal to 1 1-2 more each,	170
Sixty do. of turnips, at three earths, cultivated, or scarified and dragged, equal to 1 1-2 earth	271
Twenty-two ditto pease, at one earth, and broad-cast dragged, part of it drilled,	26
Fifty-seven acres of wheat, 32 acres on one earth, once dragged, and twenty-five of heavier land, twice ploughed and twice dragged,	123
Twenty-nine ditto of ley ground, broke up to December 1st.	29
Three ditto of beans, seven ditto winter vetches, two ditto potatoes, cultivating, dragging, &c.	17
Lime carried and "butted"† over the land, 160 butts, equal to two acres work, being a large proportion of 1920 hhds. or 9600 bushels of lime, — Haulings,	120
— Butting.*	125
Twenty-five acres of the turnip land dunged, equal to 30 1-2	30 1-2
Total	955 1-2

Hay-harvest, corn-harvest, corn to market, hauling of timber, &c.&c. not easily calculated, but still to be allowed for, probably amounting to ——. Allowing for the three-year-old steers ninety acres, and eight half days' work of two-years-old bulls, worked occasionally with the steers for the purpose of keeping them quiet; allowing also as above, the hay-harvest, &c. not brought to account; it will appear that the labour of the twelve oxen throughout the year, will amount to, if not exceed, one thousand acres.

The average amount of our labour is two acres of ley ground per day, and fallowing and stirring more than two acres; but the second cross ploughing, or earth, somewhat less. Our teams consist of four oxen, a man and a boy, to each double furrow plough, and to each four wheel wagon. Our ploughing in general very deep, and our fields small, not exceeding 4 1-2 acres each on the average. These two circumstances are to be duly considered as adding materially to the labour. The working stock consists of sixteen steers and oxen, two bulls, and three light horses, viz. six five-years-old oxen, six four-years-old steers, and four three-years-old ditto. They are fresh growing stock, and are regularly turned out to graze after the barley-sowing, at six years old. The whole object aimed at is to carry on our course of crops on the most speedy and vigorous system, but without injury to the growth of the stock.

It is evident that my labour, severe as it long has been, cannot be found to injure the health or the growth of the stock; the exhibition of my oxen annually, within 10 months grazing from the time they are turned out of work, will fully exemplify this important fact. This was in great part my object in establishing the *Barbican* cattle-show; and if I may be allowed to say so, the effect already produced, more especially in countries where oxen were held in disrepute as animals of labour, has exceeded my most sanguine expectations. That our crops are worked in so expeditiously as to amaze those who contend for horse-labour only, can not be denied; in proof of which, fifty-seven acres of wheat were this autumn ploughed, sown, and manured in a complete manner, according to the usage of the country, within three weeks, although the weather was unfavourable, and the land worked close and heavy. The last nine acres were ploughed, sown, dragged, and harrowed in one day. In obedience to to the wishes of the Society, I present them with this statement; but I waive all claim to a premium. If, however, in the ordinary course of business, any man in this kingdom shall be found to have done more at a less cost, I shall consider myself as having trespassed unworthily on the notice of this Society. It is fitting to add, that in twenty years

* Butting. The lime being mixed with the foreheads or headlands round the hedges of the field, is from thence carried in implements called buts, bodily over the land—a laborious but good management.

labour I have not lost one ox or steer, or ever broke a yoke or pair, by sickness, death, or accident. And I may further add, that so far from incurring any loss of value from working cattle after their full growth, as is supposed to be the case with horses, amounting to 25 per cent. or more; my own experience, and the concurring opinion of the Committee sent to examine our stock in the month of June last, warrant me in declaring, that working cattle, from three to six years of age, do actually gain at the rate of 20 per cent. yearly; the loss in my own case, in twenty years, being nothing!

The premium now in question, having distinctly waived my claim to it, will probably be awarded to Mr. Billingsley; and it gives me sincere pleasure that it should be bestowed on him. He has been a most strenuous and successful advocate for the labour of oxen, and is well aware of its extreme importance. Mr. Billingsly has accomplished a measure hitherto untried, namely, to set out his ploughing by the acre, and to apply one team of oxen full grown, with two to assist, in all eight oxen, to constant plough labour, every day in the year that it was possible for them to work. I consider the attempt of such consequence to the landed interest, so momentous an illustration of the powers of these superior animals in labour, that I beg leave here to offer him my sincere thanks; and I have the honour to be,

With all respect to the Society, &c. &c.

SOMERVILLE.

To the Secretary.

FROM THE NATIONAL INTELLIGENCER.

On the Grape Vine, with its wines, brandies, salt, and dried fruits.

NO. VI.

In the intructive volume of the Journey of Mr. Arthur Young, p. 315. (Pinkerton's Collection of Travels,) that judicious English farmer gives the following observations: "Upon a general view of the climate of France, and upon comparing it with that of countries not so much favored apparently by nature, I remark, that the principal superiority of it arises from adapting so large a portion of the kingdom to the culture of the vine. Yet this noble plant is most unaccountably decried by adundance of writers, and especially by French ones, though the farmer is enabled to draw as extensive profits from poor and otherwise barren, and even almost perpendicular rocks, as from the richest vales. Hence immense tracts of land may be ranked, in France, among the most valuable, which, in our (the British) climate, would be absolutely waste, or at least applied to no better use than warrens for rabbits or sheep walks. This is the great superiority which climate gives to that kingdom over England." The following notes are from Mr. Young's book:

"Labor in French vineyards, in A. D. 1786, 2*l.* 10*s.* 9*d.* sterling, per English acre, in the Isle of France, round Paris. At Estampes, 2*l.* 13*s.* 9*d.* At Orleans, 1*l.* 13*s.* 9*d.* near it, on the south, it is said to be more.

"Rents, 25, 45, 60, 80, 36, 90, and 50 livres, per acre.

Price 220livres; profit 50 livres per acre.

"Labour at Colongne, 12 sous per day and food: 1786." In the United States, we reduce human labour, by the plough and harrow, with horses.

Produce, 163 livres per acre.

"*Pellecoy.* Pass vineyards, of which there are many so steep that it is strange how men can stand at their work. One third of the country under vines, which are planted on absolute rocks, but calcareous.

"*Cahors.* Nineteen-twentieths under vines—many more than two hundred years old! The true *vin de Cahors*, which has a great reputation, is the product of a range of rocky vineyards that are upon hills hanging to the south, and is called *Grave* wine (vin de grave or gravier) or the stony (gravelly) soil. Much brandy. This wine is as full bodied as Port. Red and white wine are made of the red grape; white wine of white grape. Ploughing is done among vines in France; not always, nor often.

"*Mize.* Produce per English acre, 8*l.* sterling, exclusively of labour. Plants at 4 feet, of France, square; being 4 feet 4 inches.

"Road to *Mimes.* Several thousand of acres of vines on a level plain.

"*Paisance.* Vine grounds double in price to wheat grounds. In 44 1-2 degrees of north latitude.

"*Auch*, and to the north. Many vines.

"*Lectour.* Many vines, on stony hills.

"*La Morte Landron.* Vines on hills. Price 50*l.* sterling per English acre.

"*Langon.* Famous yellow wine. Land 50*l.* sterling per acre. Produce 15*l.* sterling per acre.

"*Barsac* Hills, that hang to the Garone, north side. An immense range of vines.

"*Castres* Vines.

"*Bordeaux de Cubsac.* Part *palus*, or bottom land, alluvion, and part high. Lands 61*l.* 18*s.* 6*d.* sterling per acre is a common price; but in some places, 173*l.* 11*s.* 3*d.* and even 191*l.* 19*s.* 3*d.* sterling per acre.

"*Cavignac.* They make much brandy: make tartar, or the salt of wine.

"*Angumois Petignac*, to *Roulet.* They make much fine brandy.

"*Angoulesme.* Vines per acre, 10*l.* sterling. An immense range of vines; much good brandy; brandy one gallon for six of wine, in some places more; varies from 1 to 4, 5, 6, 7, 8, and 9.—*Verteuil.*

"*Poitou, Chateau-rault* to *les Ormes.* Poor hills with vines, sell equally with their best vale lands, in 46th degree north.

"*Touraine.* Wine and vines.

"*Amboise.* Vines per acre, 43*l.* 15*s.* sterling.

"*Blois* to *Chambord*, on the upper Loire. Almost all the country vines, and many new plantations, on almost a blowing sand. Two thousand acres under the eye at once. Nearly all made into brandy.

"*Petiviers, Isle of France, Liancourt*, vines. Wines, so far north, bad.

"*Nantes* to *Ancenis*, vines. Promiscuous and no crops.

"*Ancenis*, on the north side of the river Loire Great region of vines along the river, though far north. Dung very little, many not once in fifteen years.

"*Varades.* Vineyards, 30*l.* sterling per acre.

"*Anjou*, St. George. Worst vines 200 livres per acre; best 500—(350 is 14*l.* 9*s.* 6*d.* sterling.) Much wine, not good.

"*Ducatel.* Vines higher than arable.

"*La Roche Guyon.* 61*l.* 8*s.* 4*d.* sterling per acre, for vineyards.

"*Neuf Moutier.* Rich district. Vines on slopes sell, on a medium, at 78*l.* 13*s.* 3*d.* sterling per acre.

"*Champagne.* Two-thirds of the country round Ay, (in 49 degrees N. lat.) Gumier, Piery, Disy, Hautvilliers, &c. under vines; and here all the famous *Champagne* wines are made. *Avise, Aunge, Lumenee, Cramont*, make the white wine, with white grapes only. At Ay Epernay and Piary, the white wine is made with the black grape only. At Airy, also, first white wines are made.

"*Angers*, on the Loire. Much wine made of a quality generally not the best. By manuring much is made, but of an inferior quality. Value of vine lands, 47*l.* 5*s.* 3*d.* sterling per acre. Produce, 9*l.* 14*s.* 4*d.* sterling per acre. Women gather the grapes. The utmost care is taken to pick out inferior bunches and decayed grapes.

"As to the culture:—in the middle of January they give the cutting, (taille), in March they dig the ground; in April and May they plant the provins, or cut slips of the vine; in June tie and hoe the septs, or growing vines; in August hoe again; in October, or, in good years, in September the vintage takes place.

"The vines are planted promiscuously, three or four feet asunder, or two and a half; are now about eighteen feet or two inches high, and are tied to the props with straw bands. Many plantations are far from being clean; some full of weeds: many hands on the hills. Steeping the black grape, before pressing, makes red wine.

"They press with a wheel—preferring the power of men to that of horses; probably because human labour is cheap, and the price of horses high in France. [The reverse is the case in the United States.]

"Two hundred livres in wine, when sold by the proprietor, pays (in 1786) various public duties of transfer, of five per cent. of augmentation, *guage, contage*, &c. of *Octroi* of the town, and king, in all

(livres)	25.0
The merchant selling, pays the same,	25.0
Each buyer, who sells it, the same,	25.0
Port duties on export,	15.0
Tavern keepers and retailers pay 30 to 40, say	35.0

"The ecclesiastics take sometimes their tenth strictly; sometimes compound for a less value in money.

"The wine trade of Rheims is worth 800,000 livres per annum, to 1,100,000 livres.

"*Lorraine, Verdun, Metz.* Vines

"*Braban.* Vines.

"*Pont au Mousson.* Vines. Many new vineyards are planted, and on lands suitable for wheat, (A. D. 1789.) The vineyards steadily increase. The income is said to be 10 per cent. on lands, vines, and farm buildings, though France is so populous and wants land.

"*Nancy Luneville.* Produce 8*l.* 12*s.* sterling, per acre.

Alsace, Strasburg, Schelesatdt, Isheim. Vines. Produce 10 7. sterling, to 16*l.* 12*s.* 6*d.* per acre.

"*Franche Compte, Besancon.* Vines. Lands in vines worth 123*l.* 6*s.* sterling, per acre.

"*Bourgogne Dijon.* (About 47 degrees north lat.) 63*l.* 19*s.* 2*d.* sterling per acre. Produce 13*l.* 16*s.* 9*d.* But the fine vineyerds of Veaunes, Romane, and Tash, &c. sell for nearly 135*l.* sterling, per acre.

"*Clos de Vougeaud.* The most famous vineyard of France. It is walled all round, and has no trees in it. Vines two or three feet high now; stand promiscuously. The soil is a brown loam, inclining to red, with stones in it, which prove on trial calcareous. It is at the foot of a hill, which is rocky. Produce 46*l.* 1*s.* 4*d.* per acre. Price 511*l.* 17*s.* 6*d.* sterling per acre. They make first red wine—also white.

"*Nuys, Burgundy.* Vines, 51*l.* 3*s.* 9*d.* per acre.

"*St. George, Richebourg, Chambertin, Coterote*, and others, above named, are the best vineyards of Burgundy, after that of *Clos de Vougeaud* which sold for above 1,100,000 livres, in 1793 or 1794.

"Manure with dung is avoided, in respect to quality; though it increases quantity. The safest manure is good fit earth or soil.

"*Beaome, Burgundy.* Vines among calcareous stones. *Valay, Aloes, Pomer, Savigne*, Mulso, [white] and Maureauche.

"*Chagnie.* Vines and *Couch.*

"*Bourbonnois, Molins Riaux* Vines.

"*St. Penorin.* Vineyards on hills.

"*Avergne, Riom, Clermont, Izoire.* Vines

"*Briude.* Vines, on rocks, and rocky declivities. Thirty-five sorts of wine here, better than the red wines of the rich plains.

"*Dauphine, Montetimart.* Vines.

"*Provence, Avignon*, and *Aix.* Vines. Also at Tour de Aeugues and Hyeres.

"Medium of many costs 61*l.* 18*s.* sterling, per acre; but deduct the most costly, the average is 41*l.* 10*s.* 6*d.*

A fair average may be 45*l.* sterling, [or $200] per acre, cost; and 9*l.* 2*s.* sterling, per acre, gross produce, [being $40 44]."

Thus ran the observations of Mr. Young, above

thirty years ago, which, though much condensed, afford a variety of useful lights on the subject, which we have undertaken to open to the view of our country. His journey through France* and Piedmont merits our utmost attention for he was engaged in an intelligent and diligent inquiry into the question, whether the profitable culture of the vine could be added to the agricultural pursuits of his native country. He believes that the British climates constitute the only, but an insuperable, impediment. It is believed, that, after similar enquiries in the United States, and after considering the vineyards of Cohauila, and those of the two Harmonys, of Vevay, of Glasgow, and the two Carolinas, with the genial regions of the orange, the cane, the rice, the indigo, the fig, and the peach, the judgment of Mr. Young on the subject of the vine would be decidedly in favour of the capacity and prospects of the United States.

A FRIEND TO NATIONAL INDUSTRY.

Philadelphia, Nov. 9, 1819.†

* It was first printed as a substantive work, in two volumes, and has been also inserted in Pinkerton's Collection of Travels.

† See No. 1 to 5, in the National Intelligencer.

FOR THE AMERICAN FARMER.

*AGRICULTURAL CHYMISTRY.—No. II.**

There is no branch of chymical science more neglected, and certainly none more generally useful and extensively beneficial to mankind than agricultural chymistry. The laws of chymical affinity are the laws of God, by which all material matter is changed, decomposed, and reformed. The rolling of a thunder storm, and the silent crystallization of a salt, are alike evidences of the implicit obedience of matter to these laws, and daily experience teaches us that they are as unchangeable as the truths of Holy Writ. The rocks and hills praise their Almighty Creator, and have never ceased to act in obedience to his command; the mind of man is *alone* privileged to obey or disobey. The growth of its body, and the movements of his food for his support, are placed beyond his control, by their obedience to those laws which govern the material substances on the earth.

The present knowledge of these laws has been acquired by observations on the phenomena of nature, and the experiments of science, which have proved the existence of the laws of affinity. Further experiments may yet produce a more perfect knowledge of them, and furnish to man still further evidences of Almighty Wisdom. The idea of finding a pabulum for the growth and support of vegetable life, is as visionary as the idea of the philosopher's stone, or an universal specific, and with them will be proscribed from the pages of science, and the consideration of common sense. Experience has taught us that a mixture of various earths in connection with the action of water, and the presence of the atmosphere, are necessary for healthy vegetable life, and that the rays of the sun bear no inconsiderable share in the formation of a plant, and the ripening of its fruit. The chief subject of enquiry for the chymist is, what earths, what combinations, and what proportions of them are best calculated for any particular plant or species of plants? With this view I will enumerate the *chief* earths, acids and metals which compose the general soil, viz:

Earths.

Lime	Carbonicc Acid	Iron
Alumine	Sulphuric Acid	
Silex	Nitric Acid	

Lime is the *basis* of the most fertile earths, but of itself is incapable of supporting vegetable life. Its natural affinity for acids is so great, that it invariably takes from the atmosphere the *carbonic acid*; by this gradual absorption it becomes changed into calcarious earth, limestone or chalk: in this state it receives the chymical name of *carbonate of lime*; this substance being slightly soluble in water, a part is taken up in solution at every fall of rain, and conveyed to the fiberous roots of vegetables, which seize on it with avidity and furnish themselves with nourishment, which increases their size and growth, and which has given to soils in which this species of earth is predominant, the character of fertile. Pure lime is not found on the earth, it is only produced by the action of fire, as soon as it is taken from the kiln it acts in obedience to the laws of affinity, by taking up whatever *acid* it meets with; this natural tendency to neutralize itself, is a provision of nature, for the formation of a soil.

Alumine or clay is the next in importance for the formation of good soil. Clay appears to possess but little chymical action in soils; its properties are rather mechanical, and the extra-power of retaining water, is happily provided by nature to counteract the evaporating power of calcarious earths, which is the first approach towards a good soil.

Silex, or sand, gravel, &c. This third great body of the soil, though not an earth, is usually classed with the earths: Its properties are not only mechanical, but chymical, and necessary towards the formation of some plants, particularly wheat, whose stock receives strength, solidity, and its brilliant surface from *Silex*. The necessity of a mixture of these earths will be obvious from the following considerations. The calcarious earth *alone* hardly possesses the power of supporting vegetation, and its evaporating power is so great, that it becomes wet and dry as it were in an instant; it would therefore always require a constant and regular supply of water without intermission, by the addition of *Alumine*, or clay, the power of retaining water is obtained, and the stiffness and excessive retension of the clay is broken by the drying power of the calcarious earth: there is yet however, an obstacle to the operations of the husbandman, and his labours would be lost, if the matereals of his soil were confined to these two articles. This mixture would produce a kind of porus mortar which would defy the action of his implements; kind nature has therefore furnished him with *Silex*, in the various forms of silecious powder, sand, pebbles, and stones, or where these have not been liberally bestowed, has given an equivalent in magnesian earth, and supplies of water from subterranean streams near the surface as evinced by the limestone springs of the great valley of Conococheague, and the Shenandoah. The various forms of Silex serve to divide the mass, and give it the pulverulent form, necessary for the admission of air, and the process of vegetation.

A. B. M.

* For No. 1, see p. 183.

TO THE EDITOR OF THE AMERICAN FARMER.

Mr. Skinner—Before any thing appeared from the pen of Mr. Cobbet on Ruta Baga, I had it in contemplation to abandon the present most approved mode of farming in this state, and pursue one entirely different. I was much dissatisfied with the *frequent* use of the plough, being convinced that it was a most expensive and pernicious method of farming. It appeared to me, that in our agriculture, clear profit and progressive permanent fertility, should be primary considerations. The best plan that I could devise to accomplish these important objects, was the following—I possessed 150 acres of arable land, which had within a few years, been so far reclaimed from a state of the most abject poverty, as to produce generally a luxuriant growth of clover. This farm was to be divided into 10 lots of 15 acres each, one of these divisions was to be manured from the dung already accumulated, and planted in Tobacco, which was to be succeeded by wheat, leaving 8 lots in clover, 4 of which was to pasture 20 bullocks, 3 *good* milch cows, two oxen, two horses, to answer the treble purpose of farming—carriage and saddle, and a *few good* hogs—the other 4 lots were to afford a crop of hay, a crop of clover seed, and then they were to relieve the other divisions by affording pasture—as the heads would only be taken off and the stalks and leaves still left, and a succeeding crop coming on. It was not proposed to gather the heads with the rake, as that will only answer when the clover is very dry, and *standing up*, and by waiting so long before gathering the seed, I should graze the other lots closer than would be desirable, besides losing the pasture of all the clover that dried—but it was intended to gather the seed with the common grain scythe, and cradle, which can be used as soon as the seed is ascertained to be well filled, and with which a man can gather 5 acres of seed a day, and do it much cleaner than I ever saw the rake do, under any circumstances. The hay and the straw would winter my stock cattle, cows and oxen, and with a little grain, my horses too, and my hogs would be in such condition from the clover and kitchen offal, that they would require but little grain to fatten them. I should then calculate on 15

hogsheads of tobaccco; 300 bushels of wheat, 60 bushels of clover seed, and 20 fat bullocks, with dung amply sufficient to manure 15 acres,* to be expended on another lot of tobacco. My wheat should be succeeded by clover, timothy and orchard grass, (sown with Bennett's grass seed machine, a most invaluable and indispensable implement of husbandry) and by the time I came round to this pasture, I should expect each acre to pasture and winter a bullock, as was done by Mr. West of Pennsylvania, and after 10 years, I should show 120 bullocks fattened on my farm; an increased quantity of tobacco, wheat and manure, &c. annually, and the land much fertilized.

When Mr. Cobbett called our attention to Ruta Baga and other roots, I was persuaded they might be profitably substituted for tobacco, as I detested the idea of sending off the farm what could be profitably consumed and converted into manure on it; this, sir, occasioned the queries that appeared in the Farmer, page 173; that, or my rustic manner has been so unhappy, as to wonderfully excite the sensibility of your very modest and courteous "friend," who appears willing to deny the prerogative of plain speaking to all but himself. It was not for me to know or enquire whether you were encroaching upon the privileges of Mr. Cobbett; it was neither the business of myself, nor I presume that of "a friend" you had promised us his process of earth burning, and my intention was to remind you of a pledge not complied with, as I supposed, from multifarious engagements until it had been forgot. You will recollect that when my queries were made, you had published nothing on earth burning.

I would with the utmost deference and humility beg "a friend" to inform me, as he appears so conversant with the subject, where he learned that it "was contrary to the very principles of nature, to feed" a fatting ox on Ruta Baga and any thing else, but grain? until he imparts this information I shall think his *assertion* as inapplicable as his notice of my queries was unnecessary. The enquiry was not for the most natural food of animals, but for the most profitable use of Ruta Baga, and as grain was to be abandoned for Ruta Baga, it will be obvious, why it was necessary when speaking of orchard grass, to say, "and can it be successfully sown in the *fall* to bring in a crop of clover afterwards in place of oats or barley." As my queries have engaged the attention of "a friend," it might be gratifying to him to know, that I have this year raised upwards of 100 bushels of Ruta Baga, from 1-4 of an acre of ground, (and was not imposed on by seedsmen) the largest of which weighed, when *trimmed*, from 7 to 9lb. and measured from 17 to more than 25 inches in circumference, and I have ascertained from accurate experiments that hogs feed on Ruta Baga boiled, will fatten half as fast as if fed on corn, and will eat four times as much in the same time; or to be more perspicuous, a hog that will require 4 bushels of shelled corn, and 6 weeks to render him any given weight will require 32 bushels of *boiled* Ruta Baga, and 12 weeks to attain the same weight.

With grateful acknowledgements to Mr. M'Culloch, for his prompt and polite attention to one of my queries, I will cease to trespass on your columns, and I fear your patience. A SUBSCRIBER.

P. S. From an analysis of Sir Humphrey Davy, it appears that 1 bushel of rye affords as much nutritive matter as 12 1-3 bushels of Ruta Baga; and that 1 bushel of Irish potatoes gives as much nutritive matter as 3 3-4 bushels of Ruta Baga.

* Vide "The error of American Agriculture exposed," by T. Moore, a work in the hands of too few practical farmers.

OCCASIONAL EXTRACTS.

EXTRACT OF A LETTER TO THE EDITOR, DATED *Bowling Green, Virginia, Dec.* 16, 1819.

"Notwithstanding the excessive drought, nature seems, in some instances, to have been unusually kind. Of the many extraordinary productions I have seen noticed, but few surpass a growth of the common turnip, sown by me in July; from about one fourth of an acre, I have sixteen tumbril loads, after having used freely for my family until about the middle of November, and they weighed, generally, from 10 to 15lbs. each. My Ruta Baga seeded about the same time are very large, from 8 to 13lbs. But I have but few of them in consequence, I believe, of defective seed."

MR. SKINNER—The following method of preserving butter, I have tried, and found it to answer my most sanguine expectations. As in 1810 (spring) I put up a small quantity for ship stores, went to the coast of Africa, where I remained between four or five months, and did not get home until the winter following, being absent near ten months; when upon landing the remains of my stores I found one or two small pots of butter, which upon tasting I found as good as the generality of butter offered for sale in our markets—this in my opinion fully tests the Receipt; for the climate of that part of the world is such, that it is next to an impossibility to succeed in curing provisions by any process, or through the agency of salt, no matter what quantity you use.

RECIPE.

For every pound of butter take half an ounce of best common salt, one quarter of an ounce loaf sugar, and quarter of an ounce saltpetre; beat them up together and blend the whole completely.

Butter thus cured requires to stand three weeks or a month before it is used; if sooner opened the salts are not sufficiently blended with it. The smaller the pots the better for sea voyages; as the frequent admission of sea air will soon turn the butter rancid.

Yours truly,
WM. B. BARNEY.

Baltimore, Dec. 12, 1819.

From the National Intelligencer.

TO THE EDITORS.

Baltimore, 8th of 11th mo. 1819.

RESPECTED FRIENDS—I have observed in your paper of yesterday's post, an article on the subject of "American manufactures of straw," by Simeon Francis, of New Haven, concluding with these words, respecting the *wire grass*, of which the American Leghorn is made—"I have been told that where the grass cannot be found, rye straw, that part next the head, will answer for a good substitute—*whether this is a fact I am unable to determine*"—and as I happen to have been an eye witness of the fact, I lose no time in saying, I have seen ladies' Leghorn hats made of rye straw, of English growth, in such a degree of perfection, as, by their similarity, completely to lead the London merchants and dealers in the article, to believe them of foreign produce, till informed to the contrary.

Rye adapted to this purpose may be grown on the most barren land; the coarser kind is used for the coarser articles, and the finest is fit for Leghorn hats, which, in this country would sell for 15, 20, or 25 dollars each.

I hope the editors of papers throughout the Union will insert the article of Simeon Francis, from motives of public spirit, for it points out a valuable branch of industry, which is well worthy of national attention. It is adapted to female employment, from its domestic nature. The ladies of Connecticut, who have originated this American manufacture, merit the gratitude of their country; for if their example is properly followed, it will prevent an annual *tribute* being sent to Italy to procure a manufactured article, which may be procured at home, at a reduced price, equal in quality to the imported article, and in quantity equal to the demand.

When duty allows me, I am rather anxious to avoid appearing before the public, but in such a case as the present, I am willing my signature should be public, if, as determining the fact in question, my authority can be of service, in a cause so amiable in its origin, and benevolent in its nature.

I remain, &c.
JOSEPH LANCASTER.

THE TEETH.

A Dentist in Philadelphia makes the following communication to the public—

I am so often asked the questions why people lose their teeth and the best way to preserve them, that I will again give the best information in my power on this all important subject—information, as laid down by the most eminent writers England has produced, joined with my own experience.

Children's first teeth, when decayed, should

be extracted, as they are liable to prevent the formation of the permanent teeth. At about seven years of age, the child's mouth should be frequently examined by a dentist, in order that an obstructing first tooth should be extracted before the permanent tooth is seen coming through the gums, pointing towards the tongue or towards the lip—for when it has once got its direction, it will keep it; but, in many parts, there is no doubt—in that case, when parents perceive a fulness or swelling of the gum inside the mouth, it is a sign the second tooth is coming, and it is then proper to extract the first tooth, to give the second room to come regular; but to go into all particulars would almost fill the paper.

About thirteen years of age is the all-important time to ensure the child good teeth during life; but it is necessary to mention, that where a child's teeth are wide apart, (and some children's are) they want no assistance, they have room to grow, and will take care of themselves.

Children, whose jaws are narrow—mouths small—teeth large—grow one above another—overlap, push each other out of the rank, and press hard against one another—these are the teeth that require so much assistance.

The four eye-teeth, (Cuspides) two in the upper, and two in the lower jaw (some persons call those in the lower jaw stomach-teeth) are exceedingly strong, and form the support of the front of the mouth—and they should be preserved—they have the largest fang of any tooth, and require a great deal of room, and, therefore, it will be right to extract the first double tooth on each side, and where the teeth are crowded, considerable advantage always attends their extraction. If they be extracted before the permanent back teeth appear, in a short time they will not be missed, as no space will be left. The front teeth will derive much benefit from this gain of room, as there will probably be left a small space between them which will tend to their preservation; for, it is observed, when teeth are situated so close as to press hard upon each other, they almost always fall into a state of decay. Sometimes the upper jaw is so narrow, from side to side, the teeth in the front parts are thrown forward, and project very much over the teeth of the lower jaw. If the first Bicospide (small double tooth) be extracted early, the teeth will fall into a regular course.

After this, the teeth require very little assistance, only, when the front ones grow up, separate them—continued pressure on any one bone in the body will break it; and when black specks appear between the teeth they should be immediately removed, before the mortification progresses too far; and keep the teeth clean.

If a tooth gets a hole in it, let it be plugged in time; and decayed teeth should not be allowed to press against sound ones. If people do not like to have them extracted, let them be separated. If the gums leave the teeth, which is very common, take off the tartar with proper instruments. Apply often soap to the bare parts of the tooth, and press the gums, very frequently, upwards or downwards, hard with the finger, and they will, in most cases, return, the gums being elastic.

The roots of the small double teeth, in each jaw, so much recommended to be extracted, at about thirteen years of age, are very short, small and close together, and these teeth extract with great ease and safety, more particularly at this early age. I will remark, for the satisfaction of those at a distance, that the above information has been twice laid before the inhabitants of Philadelphia, and they have been invited to contradict it, if not valuable and true; but no one has done it.—Wor. Gaz.

FROM THE FAMILY HERBAL.

COMMON WALNUT TREE.

JUGLANS REGIA.

DESCRIPTION.

This is a large beautiful tree. Leaves pinnated, consisting of several pair of opposite pinnæ, with an odd one at the end. Flowers in April and May, and the fruit is ripe in September.

HISTORY.

This tree is a native of Persia, but bears our climate wonderfully well, and produces abundance of a very excellent fruit, much eaten after dinner. The wood is very durable, and bears a fine polish, and surpasses in beauty mahogany or any other wood. It is the only wood proper for gun stocks, as it is very hard, and does not split.

MEDICAL VIRTUE.

The different parts of the walnuts have different properties, and they differ according as they are more or less ripe. The outer covering or husk, and the shell and peel of the kernel, are esteemed to be sudorific, especially if used before the walnuts are quite ripe; and they have been boiled along with sarsaparilla and guaiacum wood, in the preparation of decoctions used for removing venereal and rheumatic complaints, and for expelling worms; and it may be remarked, that no insect eats the beautiful leaves of this tree, nor is the earth-worm found near it. An infusion of the shells thrown out destroys the worm on which it falls. This liquor destroys even the tape-worm. The leaves have the same property. A brown dye is made of the walnut liquor, and gipsies dye themselves with it, which proves very lasting. An oil is extracted from the nut, said also to destroy even the tape-worm, and it is better than olive oil, and, never freezing, is used by painters. In France they burn it in their lamps.

HOW TO PICKLE WALNUTS.

Scald slightly, and rub off the first skin of a hundred of large walnuts, before they have a hard shell: this may easily be ascertained by trying them with a pin. Put them in a strong cold brine, put new brine the third and sixth days, and take them out and dry them on the ninth. Take an ounce each of long pepper, black pepper, ginger, and all-spice; a quarter of an ounce of cloves, some blades of mace, and a table spoonful of mustard-seeds: bruise the whole together, put into a jar a layer of walnuts, strew them well over with the mixture, and proceed in the same manner till all are covered. Then boil three quarts of white wine vinegar, with sliced horse-radish and ginger, pour it hot over the walnuts, and cover close. Repeat the boiling of the vinegar, and pour it hot over, three or four days, always keeping the pickle closely covered; add at the last boiling a few cloves of garlic, or shalots. In five months they will be fit for use.

How to make Spruce Wine.

For this, which is only a superior sort of white spruce beer, proceed as follows: to every gallon of water take a pound and a half of honey, and half a pound of fine starch. The starch, however, previously to its being blended with the honey, liquor, or syrup, must be reduced to a transparent jelly, by boiling it with the water purposely preserved; a quarter of a pound of essence of spruce may be used to five gallons of water—and the same method may be pursued in working, fining, and bottling, as directed above for the white spruce beer.

Spruce is a wholesome and pleasant drink to those who are used to it, and persons soon become habituated; it contains a vast quantity of fixed air, which is extremely bracing, and the use of this liquor is particularly to be recommended to such as are troubled with scorbutic humours, or have the gravel. It is chiefly sued in the summer months.

FROM NILES' WEEKLY REGISTER.

Beautiful Ink.—Many gentlemen who receive the *Register*, have asked where we obtained the ink with which it is directed? We make it for ourselves, and the following is our receipt: for which we are indebted to *Joseph James*, Esq. If the ink is carefully made, according to the directionts, though in the last we made they were much neglected, it is of the best quality of any that we ever met with.

Improved composition of black writing ink.

Take a gallon of soft water, and boil in it 1lb. chips of logwood, for about half an hour, then take the decoction from the fire, and pour it from off the chips, when boiling hot, on a pound of the best Aleppo galls, reduced to a fine powder, and two ounces of pomegranate peels, put into a proper vessel. After having stirred them well together with a wooden spatula for some time, place them in the sunshine in summer, or within the warmth of the fire if in winter, for three or four days, stirring the mixture as often as may be convenient. At the end of that time add a half pound of green vitriol powdered, and let the mixture remain four or five days more, stirring it frequently, and then add further four ounces gum Arabic, dissolved in a quart of boiling water, and after giving the ink some time to settle, strain it off from the dregs, and keep it well stopped for use.

If the ink be desired to shine more, the proportion of pomegranate peel must be increased: and in the country, where the logwood cannot be so easily obtained, a pound of ripe privet berries may be substituted for it.

In order to secure this ink from growing mouldy, ¼ pint or more, of spirit of wine may be added; but to prevent its containing any acid, which may injure the ink, a little salt of tartar or pearl ashes, should be added previously, and the spirit poured off from it, which will render it innocent with regard to the color of the ink.

Great Pigs in New York.—The Goshen (N. Y.) paper mentions, that two hogs, of 14 months old, were killed in that village last week, weighing together 837 lbs. including fat.

Mr. Levi Steele, of or near Albany, killed a pig a few days ago, which was 229 days old, and which weighed, when dressed, just 229 lbs. making one pound for each day of its age.

John Hutton and Thomas Jeremiah, butchers of the city of New York, recently purchased 8 pigs, 7 months old, weighing 1,599 lbs. These pigs were raised in New Windsor, Orange county, and were bought of William Houstan. They were a mixture of the grass breed and the common breed of the country.